

Implementation of Shipping MRV Regulation

Verification Procedures and
Accreditation of Verifiers

28 October 2015

Agenda

I Verification procedures

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1. NABs' surveillance to confirm continuation of verifiers' accreditation
2. Communication between NABs and the Commission



I Verification Procedures

1 Verification of the emissions report and reasonable assurance (1/7)

Verification of the emissions report (ER)

Background

- Verifier shall **assess the conformity of the ER with the requirements laid down in the EU MRV Regulation** and if **procedures defined in MP have been followed**.
- According to ISO 14065 the verification process includes the implementation of a **verification plan** developed based on the outcome of the **verifier's strategic analysis and the assessment of risks**.
- The verification plan defines the **verification activities** and **includes a sampling plan, a time schedule, a plan for testing the control activities** etc.
- The verification activities shall result in the required level of comfort to determine with reasonable assurance (highest level of assurance) that the emissions report is not materially misstated. **These requirements are in accordance with the requirements for professional audit forms for data auditing, as set by the International Audit & Assurance Standards Board (IAASB)**

1 Verification of the emissions report and reasonable assurance (2/7)

Verification of the emissions report

Elements for consideration

Objective: Harmonized approach between verifiers in performing the verification of the emissions report.

ISO 14064-3:2006: The verification plan should address the following (for providing reasonable assurance on data):

- Nature and scope of verification procedures, including the time and manner in which these procedures are carried out;
- Test plan setting out the scope and methods of testing the control activities;
- Test plan setting out the scope and methods of testing the data points underlying the reported emissions.

In creating a verification plan **professional judgment** by the verifier plays an important role → is likely to result in **different verification plans** between verifiers → **differences in the nature, scope and depth of verification procedures**

1 Verification of the emissions report and reasonable assurance (3/7)

Verification of the emissions report

1) Verification procedures

Options	Considerations
Option 1: Use of an adapted version of the procedures prescribed by Articles 13 to 21 of the AVR No 600/2012 (minimum level of verification activities to be performed), as well as high level guidance on how to execute these verification activities.	Verification procedures defined in the AVR are based on common audit procedures that have proven themselves in practice, used for different subject matters, not only for GHG emissions.
Option 2: To develop an alternative minimum level of verification activities to be performed, which similarly to the AVR would be based on EN ISO 14065 (and related).	

1 Verification of the emissions report and reasonable assurance (4/7)

Verification of the emissions report

2) Backward verification

Could occur frequently as for some ships (e.g. chartered ships) the shipping company did **not foresee operations into EU ports.**

MRV requires the company to **submit a monitoring plan** to the verifier **no later than two months** after each ship's first call in a port under the jurisdiction of a Member State.

The shipping company is required to report based on the Monitoring Plan. In case of missing emissions data the data gap procedure (as defined in the Monitoring Plan) applies.

1 Verification of the emissions report and reasonable assurance (5/7)

Reasonable Assurance

Background

“The level of assurance dictates the **relative degree of confidence** the validator or verifier requires in order to make a conclusion.” (ISO 14064:3, 2006).

Level of assurance is used to determine the **depth of detail of verification work** to be performed in order to identify any material errors, omissions, or misrepresentations. (ISO 14065, 2013).

Two degrees of assurance that the verifier gives in its opinion statement on the accuracy of data:

Reasonable level of assurance: High but not absolute level of assurance that the subject matter conforms in all material aspects with the required criteria;

Limited level of assurance: Moderate level of assurance that the subject matter is plausible in the circumstances.

1 Verification of the emissions report and reasonable assurance (6/7)

Reasonable Assurance

Elements of consideration & Rules

EU MRV Regulation requires that verification assessment concludes with **reasonable assurance** from the verifier that the emissions report is free from material misstatements.

Reasonable assurance is the **highest level of assurance** that can be obtained, and is derived from professional audit and ISO standards (e.g. refer to ISAE 3410, ISO 14064:3, 2006 and ISO 14065, 2013 (3.4.7)). → requires significantly more detailed testing by sampling source data / copies of source information (if originals are not available) etc. compared to limited assurance

Options

The **ISAE3410, ISO 14064:3 and ISO 14065 definition of reasonable assurance should be used for emissions in the maritime sector** and the AVR key guidance note should be **followed on sampling and testing of control activities** (KGD II.4) that explains how a reasonable level of assurance will determine the extent of sampling data and the testing of control activities.

1 Verification of the emissions report and reasonable assurance (7/7)

Questions for discussion



Verification of the emissions report:

- 1) Are there other suggestions for the procedures related to the verification of the emissions report?***
- 2) Are there other options for backward verification?***

Reasonable assurance:

- 1) Are further rules required?***

2 Uncertainty (1/6)

Concept of uncertainty: important for the verifier to **estimate the range of values, inherent limitations to data accuracy** and to **assess the impact of measuring errors on the accuracy of the total emissions reported**.

The level of uncertainty is determined by accuracy and precision.

Accuracy: Proximity of measured values in relation to the actual value.

Precision: Proximity of the measurements with the same quantity and under the same conditions, in other words, the standard deviation of the average.

Definition:

- Parameter, associated with the result of the determination of a quantity, that characterises the dispersion of the values [...], and describes a confidence interval around the mean value comprising 95 % of inferred values taking into account any asymmetry of the distribution of values. (MRV Regulation)
- **Range within which the actual value of reported measurements is expected to lie**, given a specific level of assurance (Ecofys)

2 Uncertainty (2/6)

Elements to consider

- **Uncertainty** for each of the **four methods of monitoring fuel consumption** is **different**.
- A **prescriptive level** of uncertainty for all monitoring approaches **might exclude certain methods** from being used.
- Due to the nature of the measuring on board, the **precision of measured values may be relatively low**.
- **Measurement equipment is not necessarily calibrated periodically**

Acceptable
level of
uncertainty

VS.



Impact on costs and
administrative burden for
the shipping companies

2 Uncertainty (3/6)

Options with regard to uncertainty

	Description	Considerations										
Option 1	Uncertainty levels are equal for all monitoring methods	<ul style="list-style-type: none">• When equal uncertainty levels are applied in the verification for all monitoring methods, this may lead to significant variations in overall uncertainty.• A plausible uncertainty level for more accurate monitoring methods may lead to the non-acceptance of monitoring methods such as manual soundings, since the verification uncertainty level is likely to be exceeded.										
Option 2	Uncertainty levels will be specified per monitoring method	Ecofys study by CE Delft: <table border="1"><thead><tr><th>Fuel Monitoring System</th><th>Estimated Uncertainty</th></tr></thead><tbody><tr><td>BDN and periodic stock uptakes</td><td>1 – 5%</td></tr><tr><td>Tank Soundings</td><td>Manually: limited to very inaccurate Electronically: 2 – 5%</td></tr><tr><td>Fuel Flow Metering</td><td>0.1 – 3.0%, depending on technology</td></tr><tr><td>Emissions Measurement</td><td>0 – 2%</td></tr></tbody></table>	Fuel Monitoring System	Estimated Uncertainty	BDN and periodic stock uptakes	1 – 5%	Tank Soundings	Manually: limited to very inaccurate Electronically: 2 – 5%	Fuel Flow Metering	0.1 – 3.0%, depending on technology	Emissions Measurement	0 – 2%
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2 Uncertainty (4/6)

Options with regard to calibration of measurement systems

	Description
Option 1	No requirements for the shipping company to regularly get measuring equipment calibrated based on manufacturer specification. Verifier and operator may rely on the specification of uncertainty levels as provided by the manufacturer (except CEMS: needs to be calibrated regularly)
Option 2	Requirements for the shipping company to regularly get the measuring equipment calibrated according to the manufacturer specification by an accredited laboratory. This includes automated measurement systems such as flow meters and CEMS.
Option 3	The shipping company needs to have a procedure in place to ensure that the uncertainty levels as specified by the manufacturer are always met and all measurement equipment is regularly calibrated.

2 Uncertainty (5/6)

Questions for discussion



- 1) What levels of uncertainty would be acceptable, given the design and operational requirements of installations at ships?**
- 2) To what extent could the verifier leverage on independent uncertainty assessments performed for operational / other legal procedures?**
- 3) Would a tiered approach towards uncertainty be helpful, for example in distinguishing criteria between smaller and larger ships?**
- 4) Is there a requirement for further analysis to determine the uncertainty of the different monitoring methods?**
- 5) If no periodical calibration is performed what would be other means of verifying the accuracy of the flow meter?**

2 Uncertainty (6/6)

Questions for discussion



- 6) If there is reliance on the uncertainty information (for the measuring equipment) provided by the manufacturer, what is the risk of reported numbers based on malfunctioning measuring equipment? What is the concrete impact of changes to the uncertainty of the measuring equipment?**

- 7) How to evaluate measured data if the uncertainty of the measuring equipment is not provided by the equipment manufacturer?**

- 8) How should uncertainty from converting ppm into tonnes of CO₂ be considered (MARPOL NO_x Technical Code)?**

3 Materiality (1/4)

Background

Concept of materiality applied by the verifier in:

1) **Planning**, 2) **Performing the verification**, 3) **Evaluating the effect** of identified and uncorrected **misstatements** on the AER, 4) Forming the **verification statement**.

With respect to greenhouse gases, EN ISO 14064:3 and ISAE3410 defines **materiality** as a concept that **individual or the aggregation of errors, omissions and misrepresentations** could influence the intended users' decisions and conclusions.

Materiality level

- In other audit environments it is the **responsibility of the auditor to determine the materiality level**, following clear rules and with very **limited room for professional judgment**.
- The **common and widely accepted materiality level for GHG statements (e.g. defined in the GHG protocol) accounts for 5%**. For EU ETS verifications, verifiers should apply either a 2% or 5% materiality level, depending on the amount of the CO₂ emissions of the installation or aircraft operator.

3 Materiality (2/4)

Elements for consideration

In case of no rules about materiality



Different materiality levels may be applied by verifiers



Depth of the verification procedures performed by verifiers may vary



- User of the information may receive emission reports with verified information based on different materiality levels
- Non-level playing field among verifiers may arise
- Costs of verifications may vary

3 Materiality (3/4)

Options

	Description	Considerations
Option 1	Determination of materiality is left to the verifier	<ul style="list-style-type: none">• Highly likely that verifiers will apply different levels of materiality, which will result in a non-level playing field between verifiers
Option 2	The level of materiality is prescribed by the delegated act	<ul style="list-style-type: none">• Most logical option• Will lead to a transparent situation as emission reports are verified with the same levels of materiality

3 Materiality (4/4)

Questions for discussion



- 1) Which materiality level could be envisaged? Do we require further analysis to determine the materiality level?***
- 2) Would different levels of materiality based on emissions' threshold be desirable?***

4 Site visits (1/6)

Background

Necessity to perform a site visit during the verification process, if feasible and reasonable from a cost perspective or **considered necessary based on the verifiers risk assessment** is reflected in **EN ISO 14064:3, 2006 (A2.6.2)**. ISAE3410 also includes consideration of site visits.

Validation and verification activities typically focus on **gathering documentary and physical evidence** (gathered by direct observation of equipment or processes)

Why site visits?

- In order to assess the **operation of measuring devices and monitoring systems**,
- To assess whether the shipping company has correctly identified the **boundaries of the site**,
- Assess whether there are **any additional emission sources** that should be included.

On-site verification activities:

- **Interviews** of relevant staff
- **Audit of administrative and reporting systems**
- Audit if **situation described in the MP** do reflect the actual situation and is **according to the risk assessment** (includes so-called walkthrough procedures in order to understand the data flow & control activities carried out by the company).

4 Site visits (2/6)

Elements for consideration

Definition of on-site: either **on board the ship** or at **the (head)office of the shipping company**.

Site visits on ships are a challenge for the verifier:

- Most of the ships are difficult to visit due to safety reasons and due to logistical issues.
- The costs of verifications will increase significantly for the shipping company as travel costs (including travel time) have to be made by the verifier to visit each ship.

Visit of the head office is deemed an alternative.

The type of & necessity for a site visit is highly dependent on the verifier's risk assessment and on the availability of all required documents (e.g. whether they are held on-board or in the head office and in electronic form or hard copy)

Elements of virtual verification could be considered (e.g. videoconferencing).

4 Site visits (3/6)

Rules

- 1) Frequency of site visits** should be kept to a minimum (that is necessary based on the verifiers risk assessment), to keep verification costs and efforts at a reasonable level.

- 2) Site visit should be mandatory for first year's verification**

- 3) (Minimum) Key activities that should be undertaken during a site visit:**
 - Interviewing staff involved in the process subject to monitoring;
 - Reviewing documents that are not required to be submitted with the emissions report, but are required to be retained by the company in the context of the EU MRV Regulation;
 - Assessing companies' procedures in practice;
 - Checking data flow and assessing the completeness of the list of emission sources and fuel types;
 - Actual testing of the control activities and assessing the application of procedures mentioned in the assessed Monitoring Plan;
 - Obtaining physical evidence through assessment of measurement equipment, monitoring systems and processes.

4 Site visits (4/6)

Options

	Description
Option 1	Onboard verification <ul style="list-style-type: none">• The decision with regard to an on-board verification needs to be based on the identified level of risk(s) to ensure that reasonable assurance can be provided;• Verifier conducting verification for 1st time;• Dependent on the monitoring methodology detailed in the monitoring plan.
Option 2	On-site verification at head office of shipping company <ul style="list-style-type: none">• Providing all documented evidence is held in the head office;• (Inaccessible location) and highly centralized data gathered at different location;• Prove of the installations characteristics and measurement equipment can be provided to the verifier remotely;• Meters/sensors have been inspected by third party and do not need physical inspection from verifier.

4 Site visits (5/6)

Options

	Description
Option 3	Remote verification <ul style="list-style-type: none"> • All documents required are available electronically; • Single source stream (fuel); • Standard emission factor; • Fuel consumption data obtained from 3rd party documents or digital/telemetered meter/sensor readings; • Meters/sensors have been inspected by third party.
Option 4	A combination of the options above.

Man-days: (per ship)	Option 1: onboard	Option 2: office*	Option 3: Remote
Man days required for verification (incl. assessment of MP in 1st year)	3-4	3-4	5-7
Man days required for traveling	0,5-2	0,5-2	0

* Please note that this estimation of man-days is highly indicative and can vary significantly since time needed is influenced by several variables.

4 Site visits (6/6)

Questions for discussion



- 1) How can other means of communication and elements of virtual verification (E.g. videoconferencing) be combined with the options mentioned?**
- 2) Can the requirements of the verification as set out in item 'Verification of the emissions report' be achieved remotely?**

5 Misstatements and non-conformities (1/4)

Background

1) Misstatements can be divided in: **non-material misstatements** and **material misstatements**:

Misstatement: Instance where the reported CO₂ emissions figure is not in accordance with the criteria against which it is audited. → Can be the result of **intentional acts** (fraud or intentional non-compliance with laws and regulations) or **unintentional acts** (errors or unintentional non-compliance with laws and regulations).

A **non-material misstatement** does **not exceed the materiality level**, while a material misstatement does.

2) Differentiation of **non-conformities** and **non-compliance**:

Non-conformities: occur when the CO₂ emissions are **not reported in line** with the monitoring methodology described in the **(assessed) monitoring plan**.

Non-compliance: occurs when the monitoring plan and/or the reported emissions have **not been compiled in accordance with the applicable laws and regulation**.

5 Misstatements and non-conformities (2/4)

Elements for consideration and rules

Rules to be developed could be largely built upon the **existing requirements on addressing misstatements and non-conformities as set out in the AVR No 600/2012.**

Items to consider:

Timing of communication by the verifier to the shipping company about the identified misstatements and/or non-conformities;

Treatment of the corrected misstatement and non-conformities: Correction of all misstatements vs. only correction of (material) misstatements that are significant to the total reported emissions.

Additional rules could be developed to increase the transparency of verification reports in case the verification report includes material misstatements or non-conformities. This could be done by including a mandatory field for verifiers where the impact, in either an absolute or percentage of total reported emissions, is expressed.

5 Misstatements and non-conformities (3/4)

Options

	Description
Option 1	The content of Article 22 of the AVR on addressing misstatements and non-conformities will be used.
Option 2	The content of Article 22 of the AVR will be used plus additional requirements on the quantification of misstatements and non-conformities.
Option 3	The content of Article 22 of the AVR will be used, with the exception that non-material misstatements do not need to be corrected (except when aggregated non-material misstatements amount to a material misstatement).

5 Misstatements and non-conformities (4/4)

Questions for discussion



- 1) Do you envisage other possible options and/or other issues to be addressed with regards to how to deal with misstatements and non-conformities?**
- 2) In relation to the improvement principle, would there need to be additional requirements on assessing follow up of misstatements and non-conformities by the verifier (e.g. related to required updates to the Monitoring Plans)?**

6 Content of the verification report (1/5)

Background

Requirements for verifiers (Article 13.5 EU MRV Regulation):

- **Issue a verification report**
- Verifiers will need to state in their verification report the misstatements and non-conformities identified during the verification and **if these misstatements and non-compliances have been resolved by the company in its final emissions report.**
- **If not resolved: stating that the emissions report does not comply with the requirements of the EU MRV Regulation** when the uncorrected misstatements and non-compliances are material, either individually or aggregated.

Requirements for shipping companies (Article 13.5 EU MRV Regulation):

Submission of a satisfactorily verified emissions report.

Note: Submission of the verification report by the ship operator to the intended user is not explicitly mentioned, but not excluded either, in the EU MRV Regulation.

6 Content of the verification report (2/5)

Elements to consider

1) Objective: A **standardized verification report** enhances **consistency and quality of information** presented to the user of the reports, the Commission and the understanding and interpretation of the results from the verification.

Verification report format: Excel format or online-tool

2) Balance of interests of the users of the verification report, the Commission and the issuers of the verification report (verifiers)

6 Content of the verification report (3/5)

Options with regard to determining the content of the verification report

	Description	Considerations
Option 1	The content of the verification report will be left to the verifier	Will likely result in many different forms & content of verification reports. For the user of the report this will jeopardize transparency .
Option 2	The delegated act will prescribe a list of minimum requirements about the content of the verification report	Increased transparency for the user of the verification report, the Commission. However, this option leaves the verifier with the possibility to choose the wording and format of the verification report .
Option 3	A template for the verification report will be required by the Commission	Option leads to maximum transparency for the user of the verification report.

6 Content of the verification report (4/5)

Options with regard to the submission of the verification report

	Description
Option 1	The shipping company sends the verification report together with the emissions report to the Commission.
Option 2	The shipping company sends the verification report upon request by the Commission.

6 Content of the verification report (5/5)

Questions for discussion



1) Are there other possible options?

2) What are your experiences with increased harmonization in verification report templates for EU ETS and other systems?

7 Recommendations for improvements (1/3)

Background and elements for consideration

Background

Recommendations for improvements are **raised by the verifier** based on the verification of the emission report.

Objective: Improvement of the monitoring and reporting process.

Elements for consideration

Independence and **impartiality** of the verifier might be in jeopardy when making certain recommendations for improvements. However, accredited verifier will not be able to recommend specific solutions for improvement. → could be addressed by designing additional rules about the recommendations for improvements to be made by the verifier

Under the EU MRV Regulation it will be left to the shipping company to what extent they will follow up on the recommendations for improvements made. → **no binding character** for the shipping company.

7 Recommendations for improvements (2/3)

Options

	Description	Considerations
Option 1	No further options should need to be developed based on existing EU ETS legislation	ETS system shows great resemblance with the MRV Regulation
Option 2	Article 30 of the AVR will be used with additional rules with regard to which recommendations for improvements could be made by the verifier. Rules will focus on limiting the recommendations to be made.	
Option 3	Rules will be developed with regard to which recommendations for improvements could be made by the verifier. Rules will focus on limiting the recommendations to be made.	

7 Recommendations for improvements (3/3)

Questions for discussion



1) Are there other possible options?



II Accreditation of Verifiers

1 NABs' surveillance to confirm continuation of verifiers' accreditation (1/3)

Background and elements for consideration

Surveillance assessments are **required in various accreditation schemes**. These assessments are relevant to **monitor quality of verifiers on regular basis**.

Assessment on fulfilment of the requirements for accreditation - including an **office visit** and **witnessing of an on-site verification**.

The **interval between surveillance assessments** shall be considered in relation to **safeguarding quality** and to **continued fulfilment of the accreditation requirements**.

Rules should be in place for the requirements of surveillance assessments.

1 NABs' surveillance to confirm continuation of verifiers' accreditation (2/3)

Options

	Description
Option 1	Annual surveillance of all verifiers , including an office visit and witnessing of on-site verification to safeguard quality, especially given the dual task of the verifier.
Option 2	Surveillance assessments according to EN ISO 17011 and the Accreditation and Verification Regulation No 600/2012, including annual or every second year surveillance (office and witness) and additional, extraordinary assessments of the verifier at any time if required to ensure that the verifier meets the requirements of the Regulation.

1 NAB's surveillance to confirm continuation of verifiers' accreditation (3/3)

Questions for discussion



- 1) Are there options on how to organise (regular and/or additional) surveillance?***
- 2) What is an appropriate time period between surveillance assessments? Shall surveillance assessments take place annually or every second year? Does this need to depend on certain criteria?***

2 Communication between National Accreditation Bodies and the Commission (1/3)

Background

NABs are responsible for accrediting verifiers, but also for potential suspension or withdrawal of accreditation for verifiers, who do not fulfil the requirements.

→ There is a need for communication between the NABs and the Commission (or a delegated party) about the **status (and potential problems) of the accreditation of verifiers and their identification**.

Currently, there is no mechanism of communication between NABs and the Commission directly about accreditation of verifiers.

Without a clear structure → **limited insight for shipping companies into accredited verifiers to choose from**.

2 Communication between National Accreditation Bodies and the Commission (2/3)

Options

	Description	Considerations
Option 1	The status of accreditation of verifiers will be communicated by the individual NABs to the Commission . A list of accredited verifiers will be published by the individual NABs.	
Option 2	The status of accreditation of verifiers will be communicated by the EA to the Commission . A list of accredited verifiers will be published by the individual NABs.	
Option 3	The status of accreditation of verifiers will be communicated by the individual NABs to the Commission by use of a standardized format . A list of accredited verifiers will be published by the individual NABs and the EA through providing direct links to each NABs list of accredited verifiers under the EU MRV Regulation.	Most efficient. Ensures a standardized communication about the status of accreditation between the parties involved.

2 Communication between National Accreditation Bodies and the Commission (3/3)

Questions for discussion



- 1) Would you envisage any other option or combination of the above mentioned ones?***
- 2) What would be another desirable way for maritime operators to have access to a complete list of accredited verifiers for the maritime sector?***

Thank you for your input

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